

CLAIMS

1. A bracket for engaging one or more struts comprising a body portion and one or
5 more arm portions extending from the body portion, wherein the arm portions
include:
at least one pair of parallel grooves adapted to releaseably engage complementary
lips of the strut; and
at least one recessed region adapted to securely engage one or more crimped
10 portions of the strut.
2. A bracket according to claim 1, wherein the respective grooves and at least one
recessed region are arranged to co-operate with a strut in the form of a U-shaped
channel member comprising a base, opposing sidewalls and lips extending from
15 each sidewall into the interior of the channel member towards the base such that a
U-shaped channel portion is defined by each lip and sidewall.
3. A bracket according to claim 1, wherein the respective grooves and at least one
recessed region are arranged to co-operate with a strut in the form of a C-shaped
20 channel member comprising a base, opposing sidewalls and lips extending from
each sidewall into the interior of the channel member towards the opposing sidewall
such that a U-shaped channel portion is defined by each lip, sidewall and the base.
4. A bracket according to any of claims 1 to 3, wherein the body portion comprises an
25 upper face, lower face and side faces.
5. A bracket according to claim 4, wherein the one or more arm portions extend
perpendicularly from the side faces of the body portion.
- 30 6. A bracket according to claim 5, wherein the bracket is I-shaped comprising two arm
portions extending perpendicularly from two opposing side faces of the body portion.
7. A bracket according to claim 5, wherein the bracket is L-shaped comprising two arm
portions extending perpendicularly from two adjacent side faces of the body portion.
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8. A bracket according to 5, wherein the bracket is T-shaped comprising three arm

portions extending perpendicularly from three side faces of the body portion.

9. A bracket according to 5, wherein the bracket is cross-shaped comprising four arm portions extending perpendicularly from four side faces of the body portion.

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10. A bracket according to any preceding claims, wherein an arm portion extends perpendicularly from the upper face and/or lower face of the body portion.

11. A bracket according to any preceding claims, wherein the one or more arm portions
10 comprise an upper face, lower face, opposing end faces and opposing side faces.

12. A bracket according to claim 11, wherein two grooves extend longitudinally in parallel alignment along the upper face of the one or more arm portions.

13. A bracket according to claim 11 or 12, wherein two grooves extend longitudinally in
15 parallel alignment along the lower face of the one or more arm portions.

14. A bracket according to any of claims 11 to 13, wherein first and second grooves are
arranged to extend longitudinally in parallel alignment along respective opposing side
20 faces of the one or more arm portions.

15. A bracket according to any of claims 12 to 14 when depending from claim 2 or 3,
wherein each groove defines one or more protruding portions that extend
longitudinally along the respective faces of the arm portions and which grooves are
25 adapted to be received and engaged by the U-shaped channel portions of the lips.

16. A bracket according to claim 15 wherein the protruding portions of the one or more
arm portions comprise one or more recessed regions to receive and securely engage
one or more crimped portions of the lips.

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17. A bracket according to claim 11 when depending from claim 4 or any of claims 12 to
16 when depending from both claim 11 and 4, wherein the upper face of the one or
more arm portion comprises one or more recessed regions to receive and securely
engage one or more crimped portions of the base of the strut.

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18. A bracket according to claim 11 when depending from claim 4 or any of claims 12 to

17 when depending from both claims 11 and 4, wherein the lower face of the one or more arm portions comprises one or more recessed regions to receive and securely engage one or more crimped portions of the base of the strut.

- 5 19. A bracket according to claim 11 when depending from claim 4 or any of claims 12 to 18 when depending on claims 11 and 4, wherein the opposing side faces of the one or more arm portions comprise one or more recessed regions to receive and securely engage one or more crimped portions of the opposing sidewalls of the strut
- 10 20. A bracket according to claim 4 or any of claims 5 to 19 when depending on claim 4, wherein the body portion comprises one or more apertures extending from the upper face to the lower face.
- 15 21. A bracket according to any of claims 11 or any of claims 12 to 20 when depending on claim 11, wherein the one or more arm portions comprise one or more apertures extending from the upper face to the lower face and adapted to be aligned with one or more apertures of an engaged strut.
- 20 22. A method of engaging a bracket as defined in any of claims 1 to 21 and a strut, the method comprising the steps of:
mounting the strut on the arm portion by locating the complementary lips of the strut in the grooves of the arm portion;
securing the strut on the arm portion by crimping one or more portions of the strut into one or more recessed regions of the arm portion.
- 25 23. A method according to claim 22 further comprising the steps of:
inserting a first portion of the lips into the respective grooves of the strut; and
sliding the lips along the length of the grooves until the strut abuts the body portion and the lips are received and releasably engaged by the grooves.
- 30 24. A method according to claim 23 further comprising the steps of:
inserting a first portion of the protruding portions into the respective U-shaped channel portions of the struts; and
sliding the protruding portions along the length of the U-shaped channel portions whilst the lips slide along the length of the grooves until the strut abuts the body
35 portion and the protruding portions are received and releasably engaged by the U-

shaped channel portions.

- 5 25. A method according to any of claims 22 to 24 further comprising the step of crimping one or more portions of the strut into one or more recessed regions using a crimping system comprising one or more hydraulic rams having a shaping tool for deforming and thereby securely locating the one or more crimped portions in the one or more recessed regions.
- 10 26. A method according to any of claims 22 to 25 further comprising the step of crimping one or more portions of the lips of the strut into one or more recessed regions on the protruding portions of the arm portion.
- 15 27. A method according to any of claims 22 to 26 further comprising the step of crimping one or more portions of the base of the strut into one or more recessed regions on the upper face of the arm portion.
- 20 28. A method according to any of claims 22 to 26 further comprising the step of crimping one or more portions of the base of the strut into one or more recessed regions on the lower face of the arm portion.
- 25 29. A method according to any of claims 22 to 28 further comprising the step of crimping one or more portions of the opposing sidewalls of the strut into one or more recessed regions on the opposing side faces of the arm portion.
- 30 30. A method according to any of claims 22 to 29 further comprising the step of simultaneously crimping one or more portions of the strut into one or more recessed regions of the side faces of the arm portion.
- 35 31. A method of engaging a bracket as defined in any of claims 1 to 21 and a plurality of struts comprising the method of repeating any of the method steps of claims 22 to 30 to mount and secure a strut on each arm portion.
32. A method according to claim 31 comprising the step of simultaneously crimping one or more portions of the struts into the one or more recessed regions of the each arm portion.

33. A frame comprising a plurality of brackets as defined in any of claims 1 to 21 and a plurality of engageable struts.
34. A frame comprising a plurality of brackets and engageable struts, the bracket
5 comprising a body portion and one or more arm portions extending from the body portion, wherein the one or more arm portions include:
at least one pair of parallel grooves adapted to releasably engage complementary lips of the strut; and
at least one recessed region adapted to securely engage one or more crimped
10 portions of the strut.
35. A frame according to either claim 33 or 34 for supporting building services.
36. A method of constructing a frame according to any of claims 33 to 35, the method
15 comprising the steps of contemporaneously or sequentially mounting and securing respective struts to arm portions of the brackets to form a frame structure.
37. A method according to claim 36 comprising the method of repeating any of the method steps of claims 22 to 29 to mount and secure a strut on each arm portion of
20 a bracket.
38. A method according to claim 37 comprising the step of simultaneously crimping one or more portions of the struts into one or more recessed regions of the arm portions of one or more brackets.
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39. A bracket as claimed in any of claims 1 to 21 and substantially as herein described with respect to any of Figures 3A to 9B.
40. A method of engaging a bracket, according to any of claims 1 to 21, and a strut as
30 claimed in any of claims 22 to 30 and substantially as herein described with reference to any of Figures 3A to 10D.
41. A method engaging a bracket according to any of claims 1 to 21 with a plurality of struts as claimed in any of claims 31 and 32 and substantially as herein described
35 with reference to any of Figures 3A to 10D.

42. A frame comprising a plurality of brackets, according to any of claims 1 to 21, and a plurality of struts as claimed in claim 33 to 35 and substantially as herein described with reference to any of Figures 3A to 10D.
- 5 43. A method of constructing a frame, according to any of claims 33 to 35, as claimed in any of claims 36 to 38 and substantially as herein described with reference to any of Figures 3A to 10D